

CLAIMS

What is claimed is:

1. A method for generating a matte signal identifying the silhouette area of a presenter in front of a projection screen containing retro reflective elements, and upon said screen a projector displays images, said method comprising:

- a) placing an infrared camera and an infrared illumination source in proximity to each other and to said projector;
- b) illuminating said projection screen and said presenter with infrared illumination from an infrared source; and
- c) observing said screen and said presenter with said infrared camera whose infrared signal levels constitute a linear matte signal defining the presenter's silhouette area.

2. The method of claim 1 in which said infrared source is located coaxially with an axis of a lens of said infrared camera.

3. The method of claim 2 in which said infrared source is made coaxial with said infrared camera lens axis by using an infrared beam splitter before said camera lens.

4. The method of claim 2 in which said infrared source is made coaxial with said infrared camera lens axis by using a ring of infrared emitting diodes placed around a barrel of said infrared camera lens.

5. The method of claim 1 in which said infrared camera includes a filter to block passage of visible light.

6. The method of claim 1 in which said linear matte signal is assigned a signal level of 0.0 for those camera signal levels below a selected threshold, and assigned a signal level of 1.0 for signal levels above said selected threshold thereby generating a binary matte signal.
7. The method of claim 1 in which said projection screen provides an essentially uniform brightness distribution to a viewing audience, and said included retro reflective elements provide a very high gain as seen from the position of an infrared illumination source.
8. The method of claim 1 in which said retro reflective screen elements are of such a size as to be substantially invisible to a front row audience.
9. The method of claim 1 in which said projection screen containing retro reflective elements is created by silkscreen printing of a selected pattern with a white pigment onto a high gain retro reflective projection screen.
10. The method of claim 9 in which said selected pattern blocks the transfer of white pigment onto very small dot-like areas uniformly distributed over said screen area.
11. The method of claim 10 in which said dot-like areas occupy approximately 5% of the total screen area.
12. A dual gain projection screen comprising a majority of visible light reflective elements and a minority of retro infrared reflective elements, said retro reflective

elements being sized small enough and spaced sufficiently apart from one another to be substantially invisible to persons viewing the projection screen at normal viewing distances.

13. A system for selectively inhibiting light emitted from an image projector comprising:

- a) an infrared camera disposed adjacent to an infrared illumination source and to said image projector; and
- b) means for generating a matte signal identifying a silhouette area of a presenter in front of a projection screen containing retro reflective elements utilizing infrared signals from said infrared illumination source reflected from said retro reflective elements.

14. The system defined by Claim 13 wherein said generating means comprises said infrared camera operating to sense infrared illumination reflected by said retro reflective elements.